

FIG. 1: Example VDSL Spectral Plan

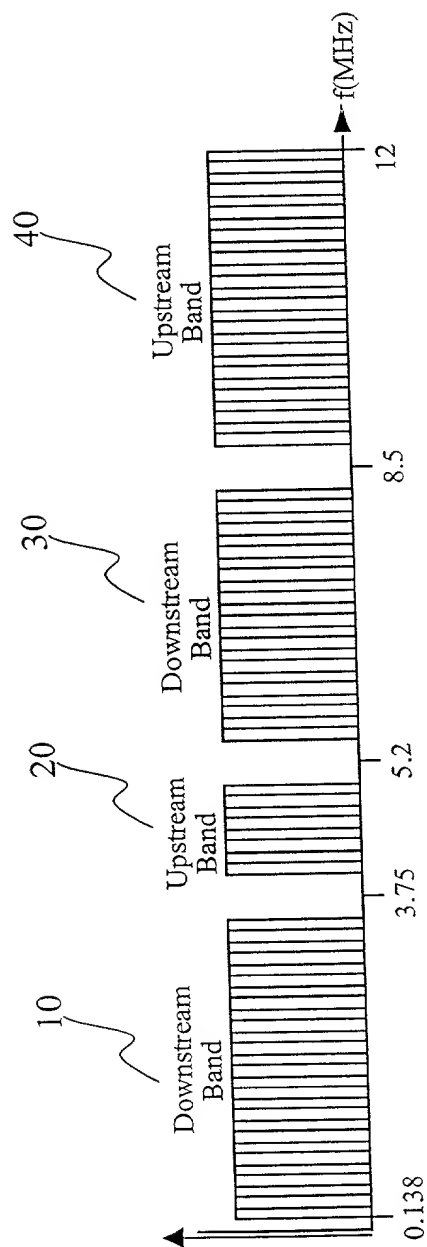


FIG. 2: Multi-Carrier Modulation Implementation of Example VDSL Spectral Plan

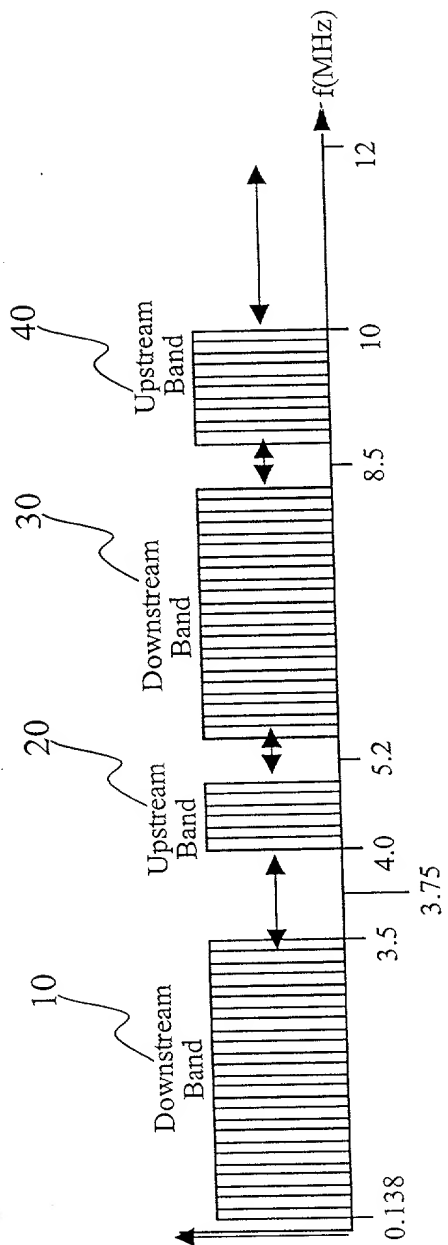


FIG. 3: Adjustment of Total Bandwidth in an MCM System

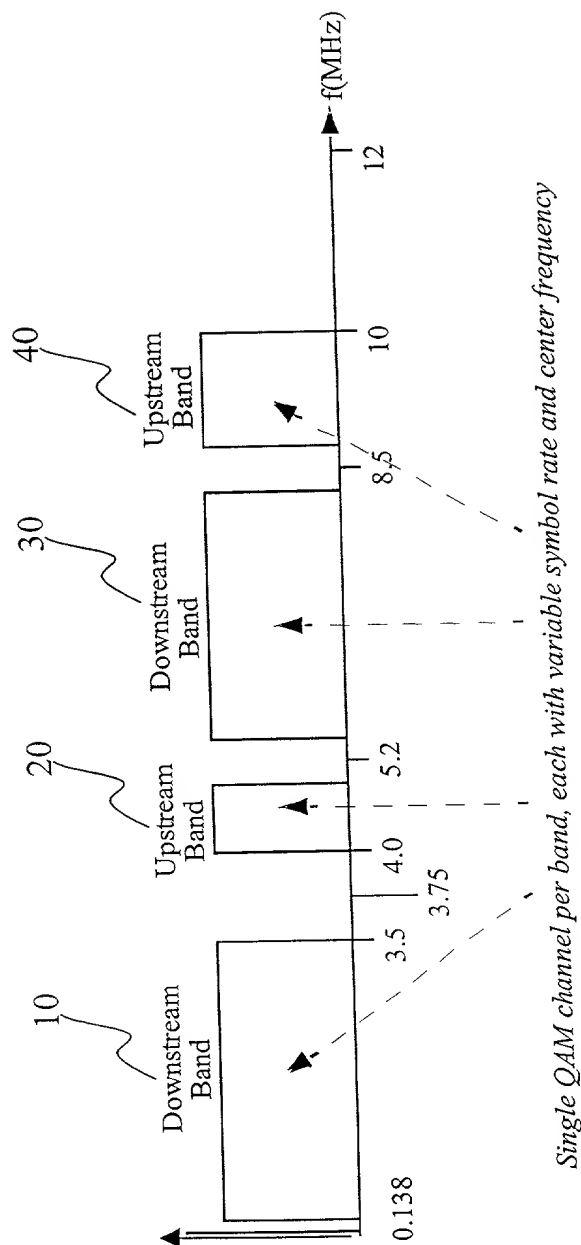


FIG. 4: Adjustment of Total Bandwidth in a SCM System

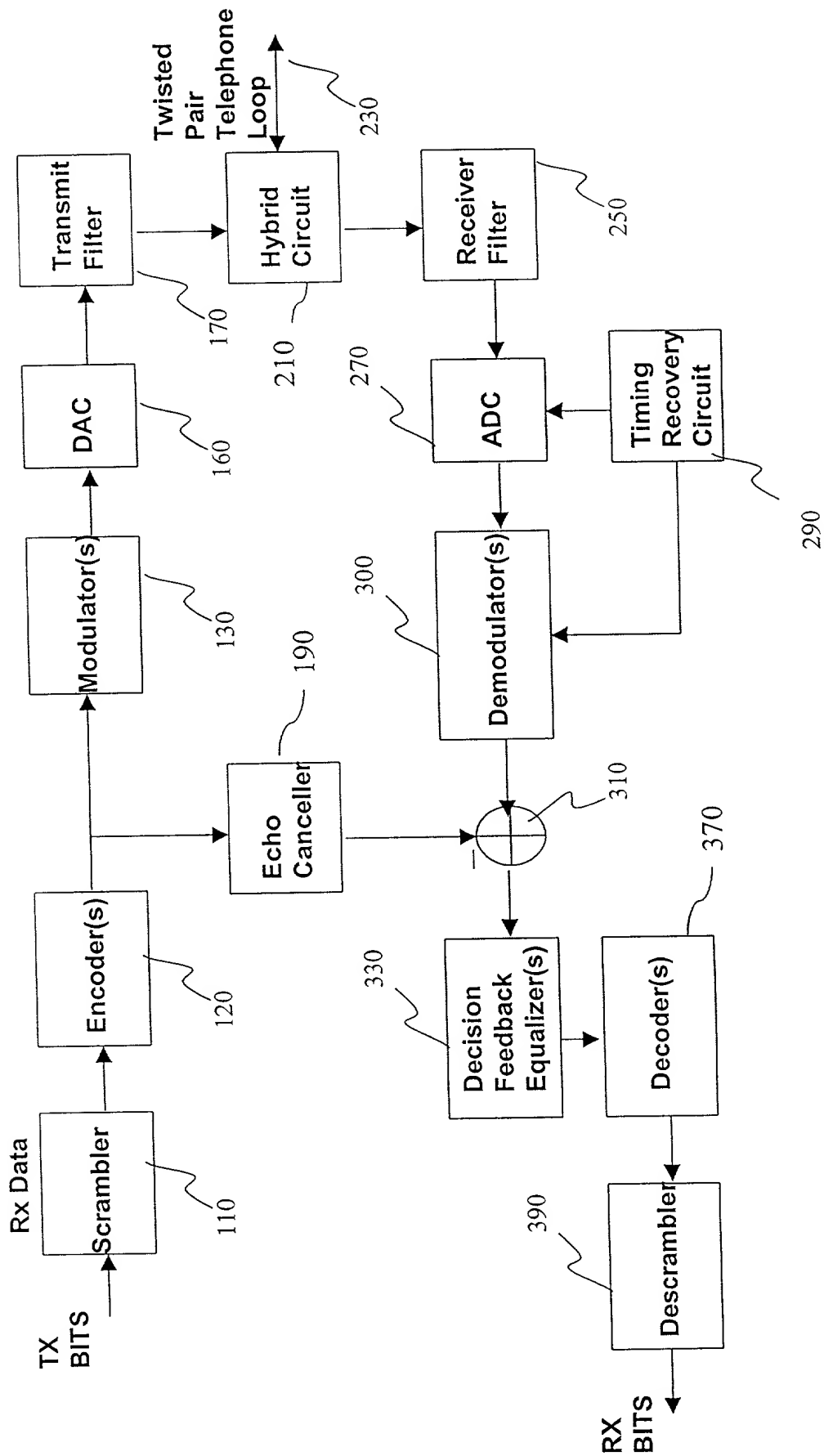


FIG. 5

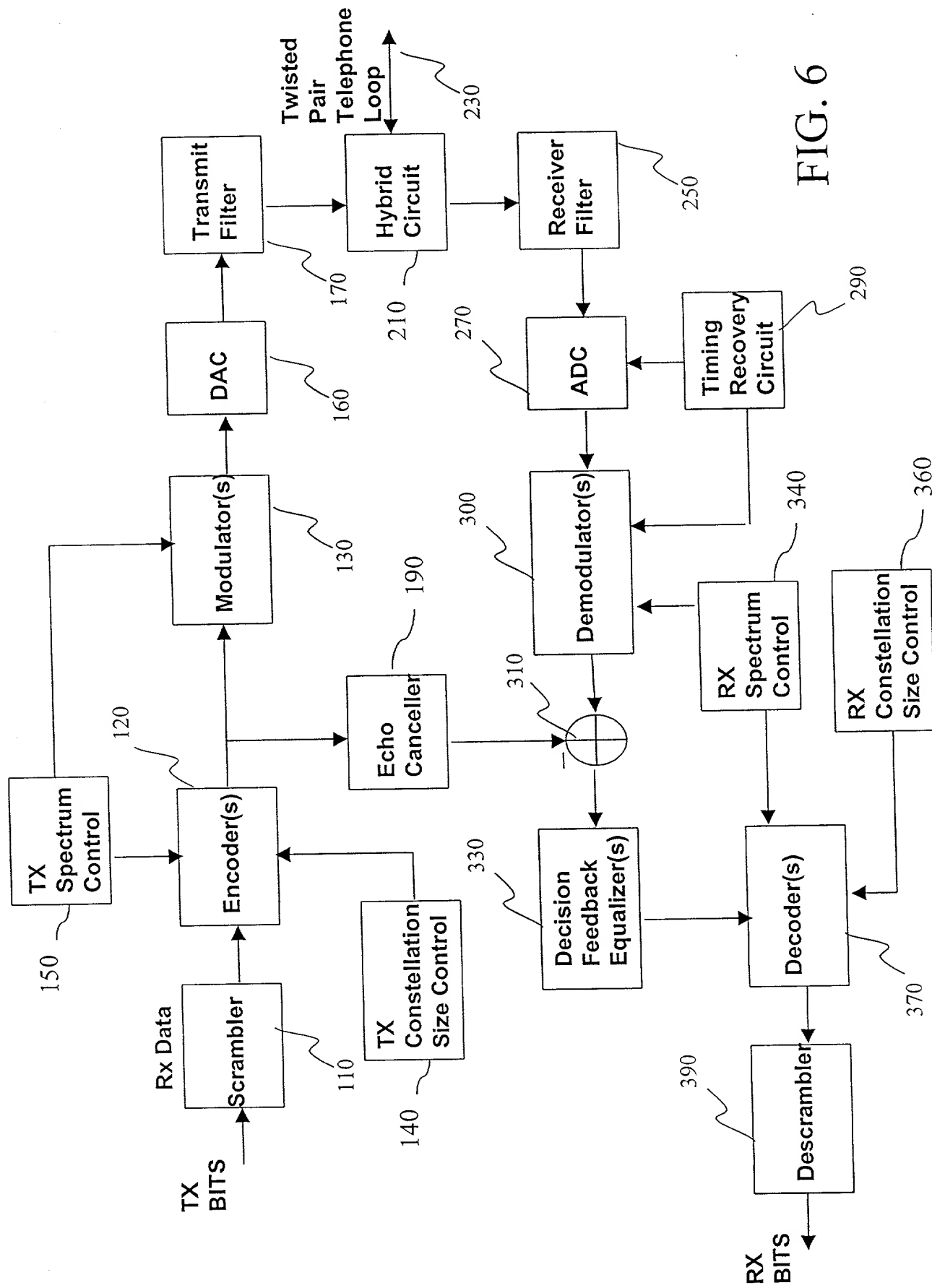


FIG. 6

Step 1: Define A Set of N_i Spectral Allocations (i.e. symbol rate, center frequency pairs) For Each Of The B Bands, Where $i=1,2,3,\dots,B$

400

Step 2: Define a Set $\{E_n\}$ of Selection Vectors, Where Each Vector E_n Indicates a Specific Choice of Spectral Allocation (symbol rate, center frequency) for Each of the B Bands, and Where the Entire Set Contains All Such Possible Choices.

410

Step 3: Measure or Compute the Signal-to-Noise Ratio SNR_{ij} Associated With (Symbol Rate, Center Frequency) pair j on Band i , for Each Pair on Each of the B Bands.

420

Step 4: Calculate the Max Constellation Indicator C_{ij} Associated With (Symbol Rate, Center Frequency) Pair j on Band i , for Each Pair on Each of of the B Bands, Based on SNR_{ij} and the SNR Margin Requirement M_{Req} .

430

B

Step 5: For Each Element E_n of $\{E_n\}$, Set the Initial Value of Each Component of the Corresponding Applied Constellation Vector K_n Equal to the Corresponding Max Constellation Array Element C_{ij} .

440

Step 6: Calculate the Initial Value of the Margin Vector M_n Corresponding to E_n and K_n . Define the Minimum Margin Scalar m_n as the Minimum Component of M_n .

450

A

FIG. 7

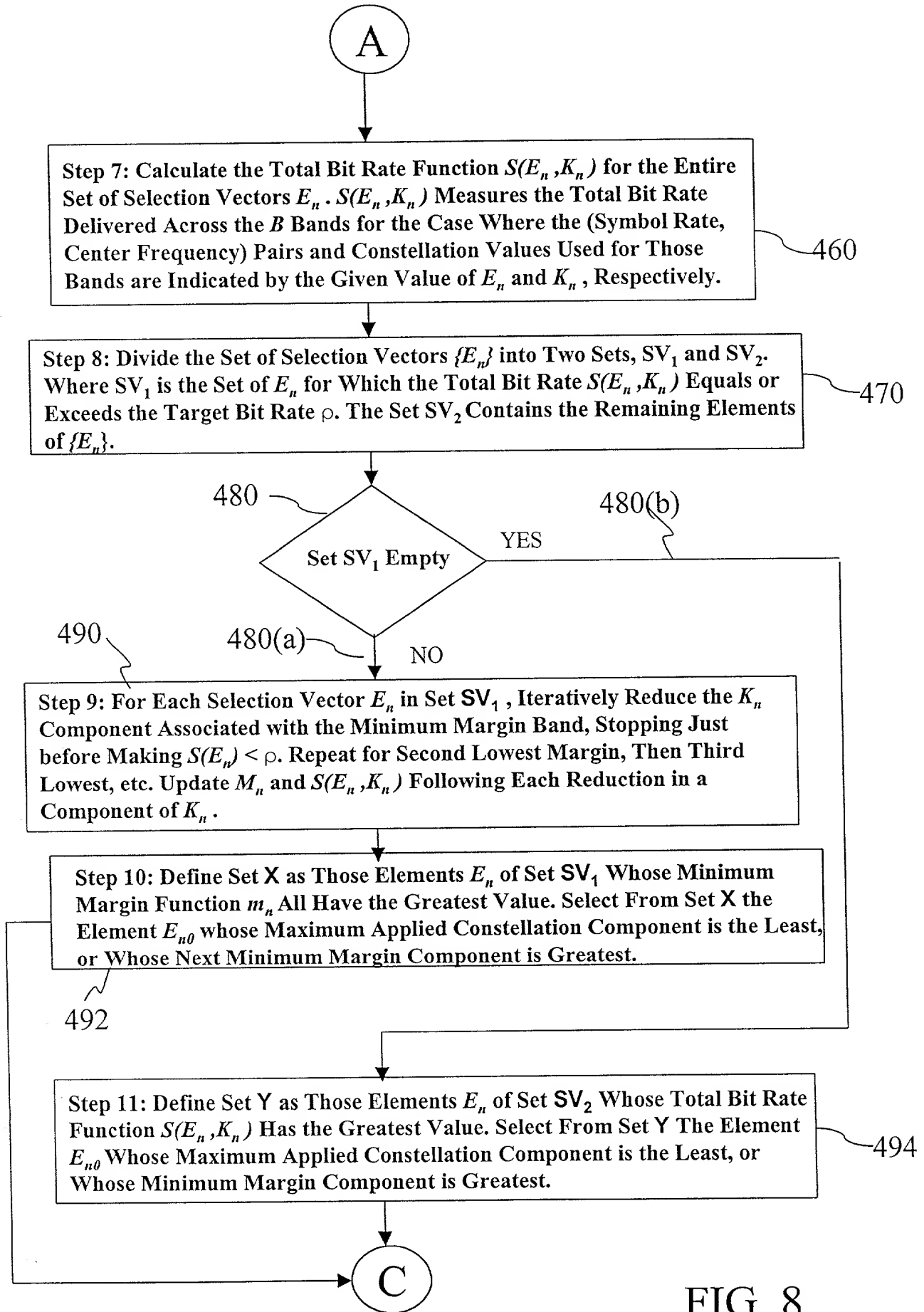


FIG. 8

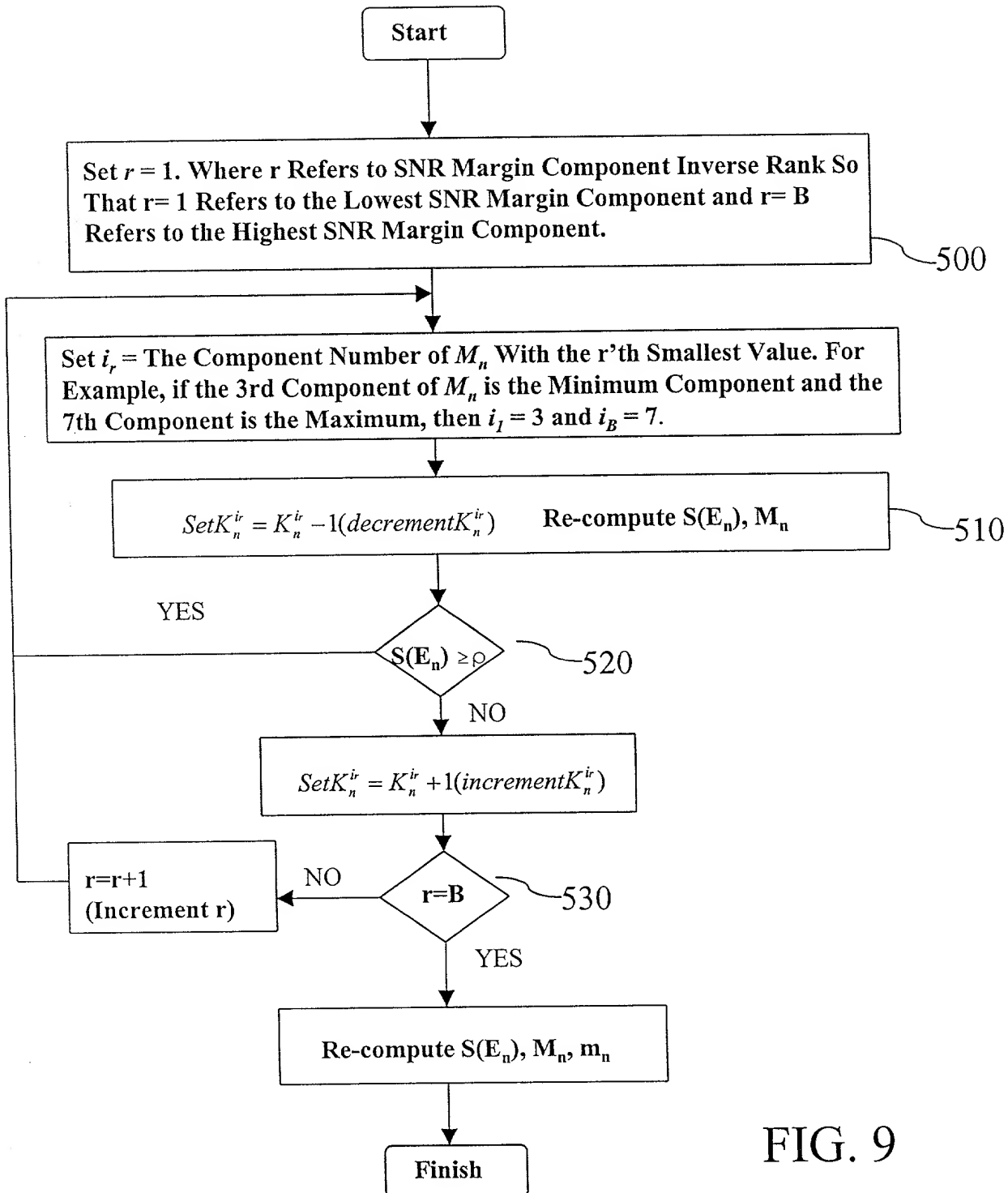


FIG. 9

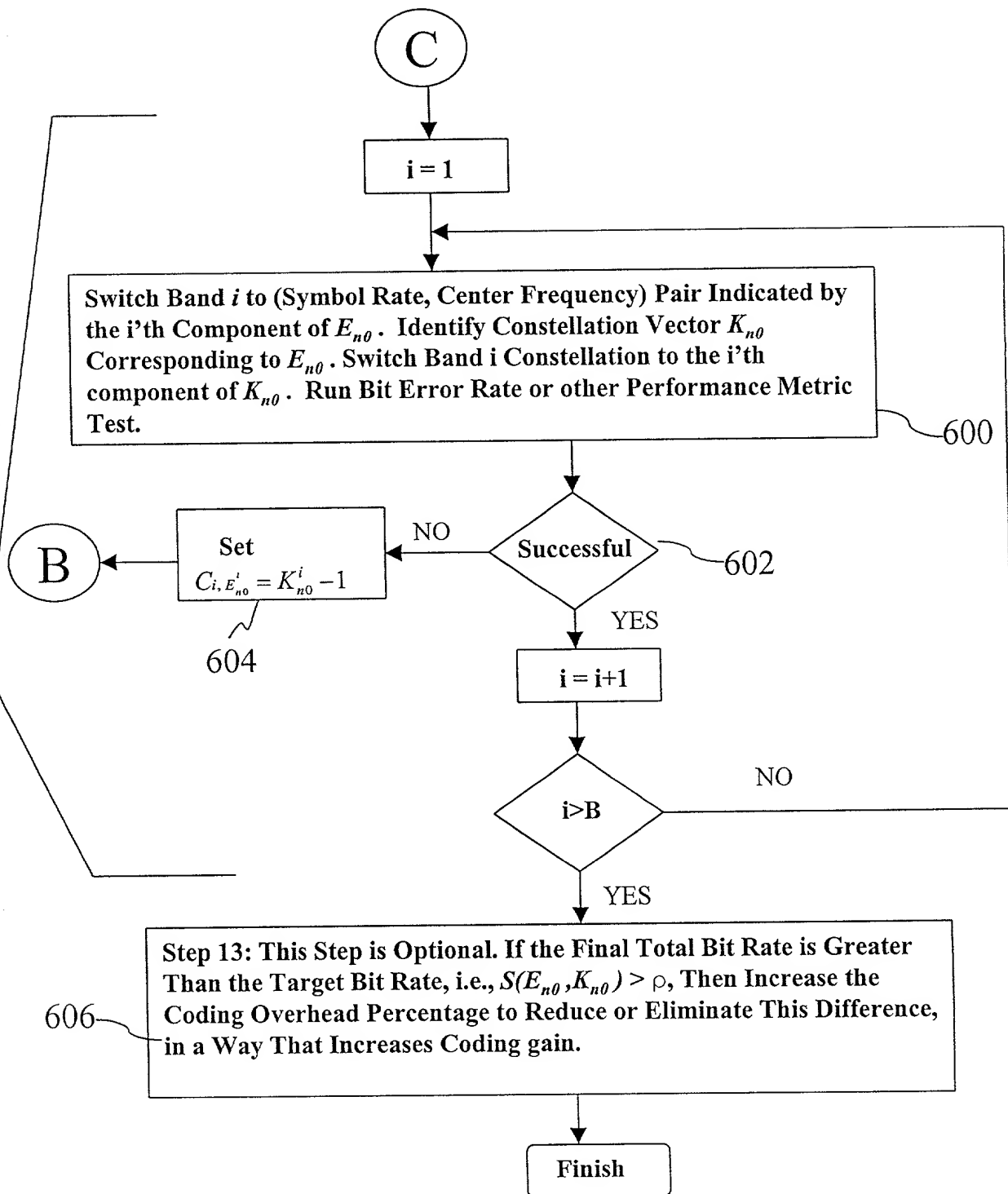


FIG. 10

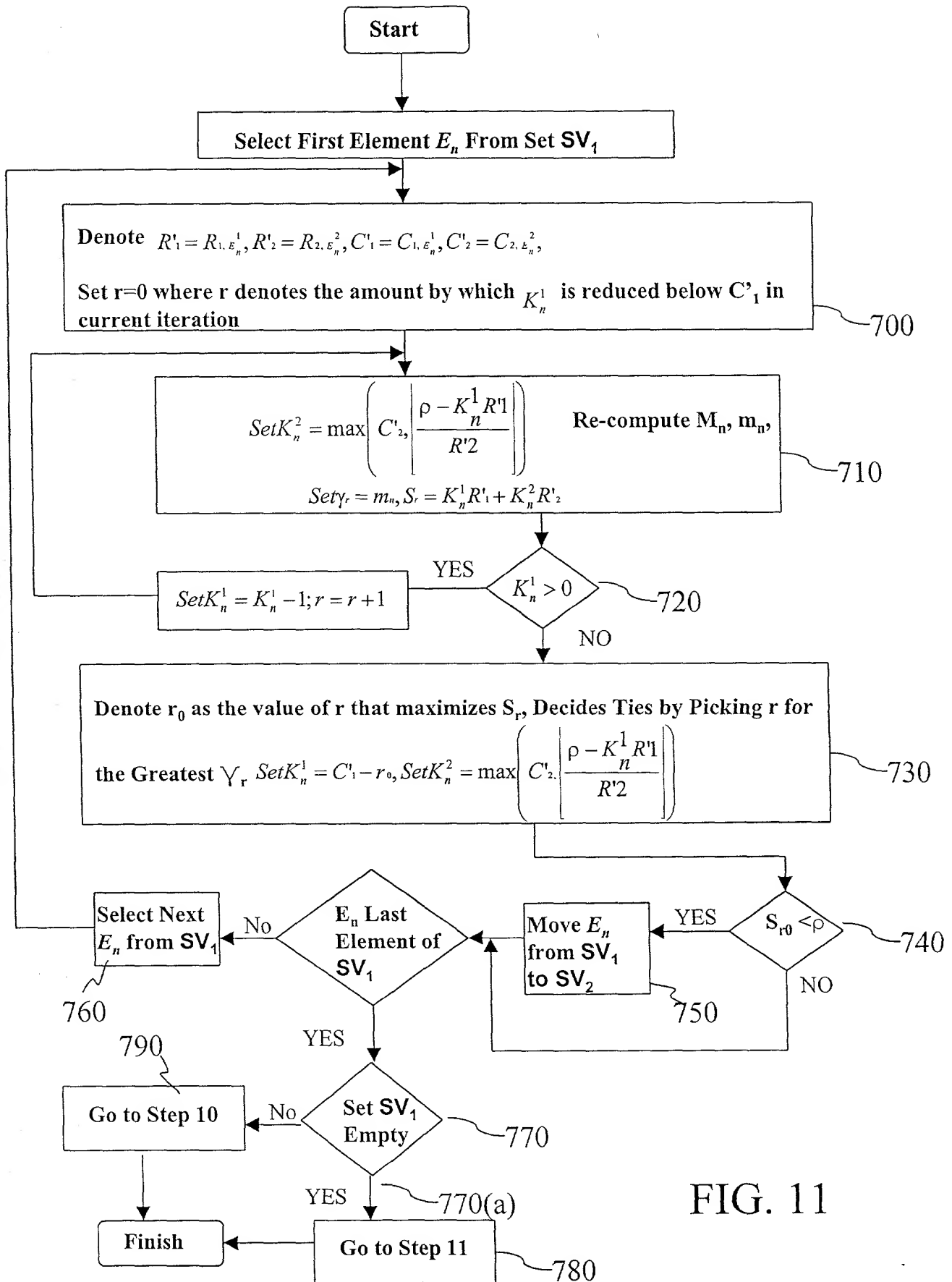


FIG. 11